

## ALTERNATIVE ELEMENTS FOR DRAWING FRAMES

Project leader: Dipl.-Ing. Peter Voidel

Project duration: 08/07-09/09

### ABSTRACT

Compared to other spinning processes, the characteristics of the classic ring spinning process, such as flexibility, possibilities of raw material application and the achieved yarn parameters are unbeatable. Apart from drive and control engineering, the principal design of the ring spinning machine, especially in the field of the spinning elements, changed little in the last decades. In order to further improve the yarn properties, a lot of energy is used for processes and equipment that are arranged downstream the traditional drawing device. Due to the necessary suction air, however, the use of these additional units requires a considerable additional amount of energy. By using the appropriate alternative elements of the drawing frame, such condensing zones could be avoided and, as a result, energy could be saved.

The target of the research project was to increase economic efficiency of yarn production by means of the improvement of the yarn properties. Alternative elements for drawing frames and their influence on the yarn properties should be investigated compared to conventional thread guidings. Within the project, we concentrated exclusively on the main drafting zone. Apart from various plate-shaped guiding elements of the top roller cage, alternative top aprons were used that allow a more flexible guidance of the yarn up to immediately before the nip line of the pair of delivery rollers. There were shown some possible ways to exert a positive influence on the yarn unevenness by means of additional elements in the main drafting zone.

As a result of the research project, it can be considered that an improvement of the yarn unevenness by means of design measures in the area of the main drafting zone is generally possible. The substitution of the traditional guiding of the top aprons by alternative guiding elements only is not sufficient for the improvement of the  $C_v$  value. When using a flexible top apron in connection with additional elements immediately before the pair of delivery rollers, an improvement of the yarn unevenness could be proven.

### Acknowledgement

We would like to thank the Federal Ministry of Economics and Technology for the financial funding and the EuroNorm GmbH project management organisation for the support of the project IW 072121.